Defense Information Infrastructure (DII)

Common Operating Environment (COE)

Statement of Functionality (SOF)
for the
Joint METOC Viewer (JMV) Segment

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1 SCOPE

1.1 Identification

This document describes the functionality of the Joint Meteorological and Oceanographic (METOC) Viewer (JMV) Segment developed by Fleet Numerical Meteorology and Oceanography Center (FNMOC), Monterey, CA.

1.2 System Overview

JMV displays METOC data and information in traditional formats used by forecasters to conduct their business. General forms include maps containing contours, plots, and other weather depictions of METOC variables, cross-sections of ocean and atmospheric variables, plots of vertical variation of METOC variables such as bathythermographs and atmospheric soundings, time series, and time sections depicting measured or forecast changes in METOC variables at selected points. Overlays of weather depictions on satellite imagery facilitate analysis of environmental conditions. Looping of several of these products enhances the forecaster's ability to understand the dynamic aspects of the changing environment.

1.3 Document Overview

Section 2 provides details of the JMV functionality.

2 JMV SEGMENT FUNCTIONALITY

JMV is a stand-alone viewer for METOC data. It may be used in conjunction with the METCAST Client segment, which can automate the downloading of data required by JMV users, but it also has the capability to download data from "thumbnails" posted on web pages. A thumbnail represents a specially formatted file containing data to be displayed in JMV. JMV may also be used to display data provided by a local user or program.

JMV allows a user to:

- **Display and Annotate Charts of METOC Data.** JMV can display scalar METOC data as contour charts, color-filled and/or patterned areas, or both. Vector data may be presented as wind barbs, arrows, or streamlines. Observational data may be presented as station models or simple location indicators. The location indicators, when clicked, show data views tailored to the data type (e.g. raw reports for METARs, Skew-T Log P diagrams for upper air reports). Three-dimensional scalar data may be shown as horizontal slices (contour charts), vertical cross-sections, or vertical profiles at selected points.

  JMV also provides a complete set of annotation tools, which allow the user to embellish a chart with weather symbols, text, and a variety of line types (e.g. weather front representations, labeled lines, etc.). Objects drawn on the chart may be resized and their shapes may be modified. When preparing for an animation, objects may be drawn on the first chart and moved and/or reshaped for subsequent forecast hours, so that the drawn objects are animated along with the charts.

- **Satellite Imagery Display.** JMV can display geolocated satellite imagery, and provides a suite of tools to enhance imagery. Multiple images may be displayed simultaneously. Satellite imagery may be overlaid with METOC charts and drawn objects.

- **Ship Route Display.** This module allows users to input and graphically display and edit ship tracks worldwide. Any meteorological and oceanographic product available (including drawings) can be overlaid on a track. The display can be incremented in one-hour intervals to show a vessel progressing along its track. Overlaid meteorological and oceanographic products are interpolated to show one-hour increments in order to progress smoothly with the vessel track.

- **Extratropical Winds and Seas Warnings.** This module is used to build winds and sea warning areas while overlaying the actual weather charts, greatly simplifying the process and reducing the possibility of error. The graphics are converted to text in message format for transmission.

- **Tropical Cyclone Warning Display.** This function ingests information on tropical cyclones worldwide. These tropical systems can then be displayed in conjunction with any other product available to JMV. Standard display features include forecasted positions, wind radii, intensity, danger areas, and movements in standard warning format. When used in conjunction with the Ship Route feature, the closest point of approach (CPA) is automatically

calculated. Tropical cyclone positions and intensities can display at non-standard tropical forecast times.

- **Slide Show.** Slide Show is a tool to build, display, and save briefing slides. An individual slide can contain up to five products per chart, including color fills and drawings. A user can control how the charts are displayed during the presentation. When the underlying data for a slide show updates, the entire presentation can be updated by choosing the build button without recreating the entire show. The user may also print the entire slide show to a printer or save it in Hyper-Text Markup Language (HTML) for viewing on a web page.
- **Range and Bearing Tool.** In Range and Bearing mode, rhumb line distances and bearing are easily calculated with the click of a mouse button. Additional points give the distance and bearing from the last two points as well as a cumulative distance and bearing from the original point.
- **Export Images.** JMV can export images for use in other applications. Options include BMP, JPEG, and GIF image formats, and direct conversion to an HTML format.
- **Animation.** JMV allows automated animation of METOC charts. The user simply designs one chart containing the data to be displayed for a single forecast hour, then clicks a button to perform the animation. The system automatically retrieves the same data for all of the other forecast hours selected, then produces the individual frame for each forecast hour. User-drawn objects (such as a Horizontal Weather Display) may be produced by a user and tied to the appropriate forecast hours, so that they are animated along with the rest of the charts.
- **Data Thinning.** JMV can apply data thinning for observation data to improve the readability of charts. The amount of data thinning applied is user-selectable, and data thinning may also be toggled off completely.
- **Display Configurations.** Station Model and Wind Barb displays are easily configured to user specifications.
- **Font Sizes.** The User may select the font sizes for product labels, contour labels, Ship track labels, Storm track labels, and OPARS track labels.
- **Contour Labeling.** Center values for all highs and lows are displayed. Contour lines are also automatically labeled.
- **OPARS**. JMV imports and displays aircraft flight paths created with Optimum Path Aircraft Routing software. The advantage of this feature is that forecast conditions can be overlaid on the flight path.
- **Four Panel Display.** This function enables four charts to be displayed simultaneously on the screen. Additionally, the four-panel display can print to a single sheet of paper.
- **Online Help.** JMV is supplied with detailed, web browser-based online help.

It is beyond the scope of this document to discuss the details of the graphical user interface of JMV. The *JMV User's Guide* and the online help provide a comprehensive discussion of all JMV functions and details of each of the JMV dialogs.